

PROGRAM FOR ARTERIAL SYSTEM SYNCHRONIZATION (PASS) FY13/14 CYCLE

City of Concord Signal Timing Project

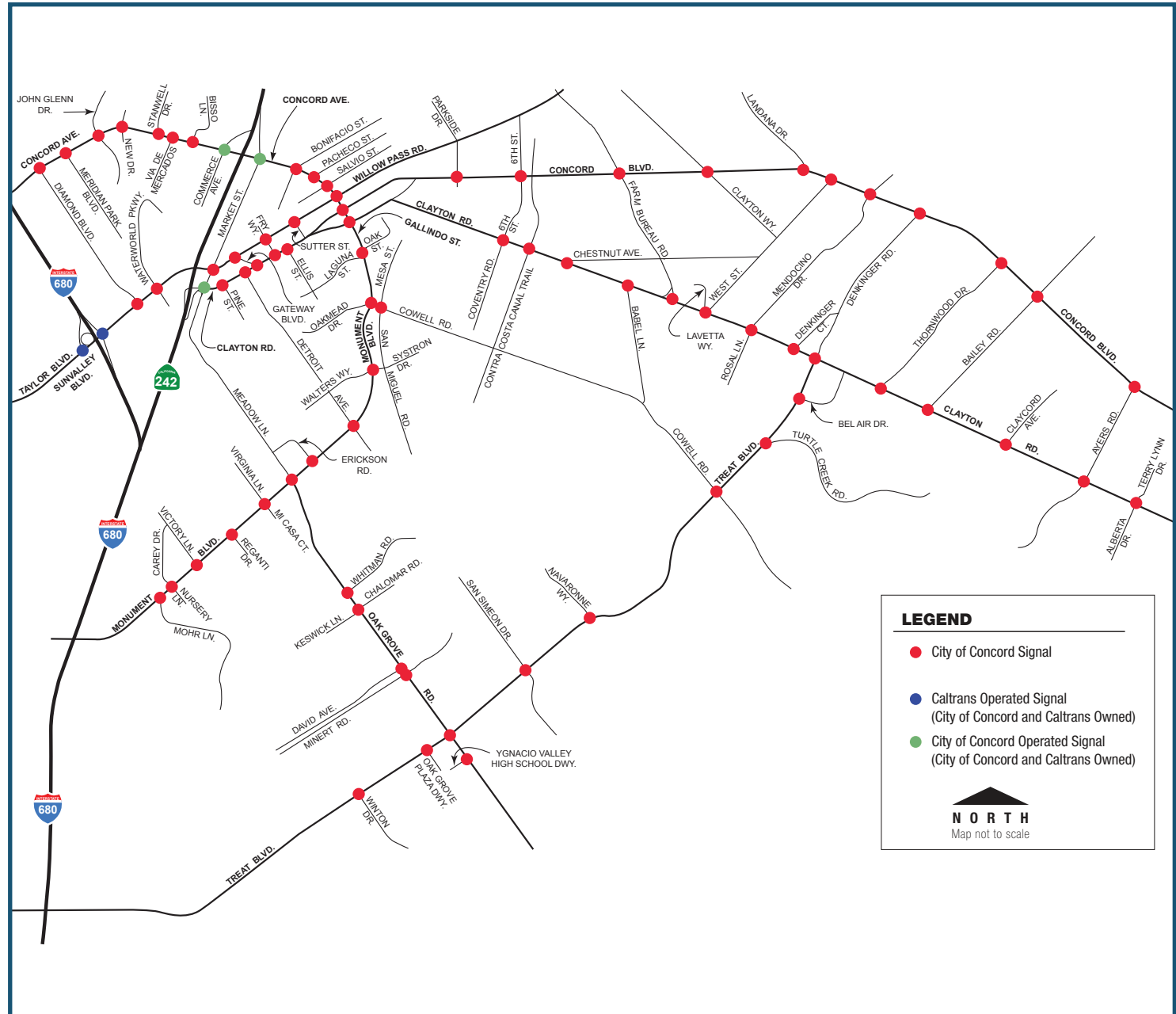
City of Concord | Caltrans | Metropolitan Transportation Commission

PROJECT OVERVIEW

The City of Concord received a grant from the Metropolitan Transportation Commission's Program for Arterial System Synchronization (PASS) to conduct a signal timing study for 78 traffic signals along various corridors in the City. Seventy-three of the project intersections are owned and operated by the City of Concord, three signals are owned by the City and Caltrans but operated and maintained by the City, and two signals are owned by the City and Caltrans but operated and maintained by Caltrans.

The goal of the project was to conduct a timing analysis and develop and implement signal coordination plans during the weekdays for the 78 project signals. Timing plans developed and implemented consisted of AM, midday, and PM peak periods on typical weekdays.

The PASS project involved the completion of the following tasks: collect turning movement counts, including vehicular, pedestrian, and bicycle counts; conduct travel time surveys; review collision history; develop and implement coordination plans for the study periods; and conduct the "before" and "after" travel time surveys to assess the performance of the new plans. The field fine-tuning was conducted and minor adjustments were made to the offsets and splits based on observed traffic conditions.



BENEFITS TO VARIOUS MODES



BENEFITS TO PEDESTRIANS:

The Walk timing and Flashing Don't Walk clearance timing parameters were also updated to provide adequate time for

children and seniors to safely cross the study intersections to accommodate the new walking speed of 3.5 feet/second, as specified in 2012 California MUTCD standards. The Walk times and Flashing Don't Walk clearance times were adjusted for all intersections.



BENEFITS TO TRAFFIC SAFETY:

The yellow clearance timing parameters were updated based on posted speed limits along the study corridors at seven project intersections and no changes were made to all red clearance timing parameters.

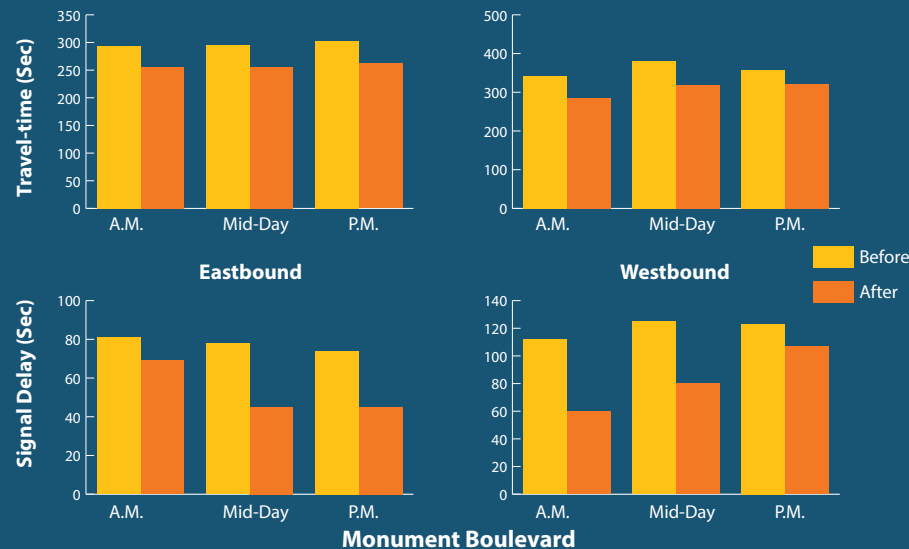
Project Costs

Consultant Costs (Basic Services/ Plans)	\$202,000
Consultant Costs (Additional Plans, TSP, IM Flush Plans, etc.)	\$1,680
Other Project Costs (GPS Clocks, Communications equipment, etc.)	\$6,000
Agency Staff Costs (Estimate)	\$50,500
Total Costs	\$260,180

Project Benefits

Measures	First Year		Lifetime (5 Years)	
	Savings	Monetized Savings	Savings	Monetized Savings
Travel Time Savings	301,450 hrs.	\$5,882,910	808,657 hrs.	\$15,781,239
Fuel Consumption Savings	1,013,130 gal.	\$3,909,839	2,717,779 gal.	\$10,488,364
ROG Emissions Reduction	3.20 tons	\$4,032	8.59 tons	\$10,816
NOx Emissions Reduction	2.52 tons	\$45,303	6.75 tons	\$121,529
PM2.5 Emissions Reduction	0.11 tons	\$35,421	0.30 tons	\$95,020
CO Emissions Reduction	31.98 tons	\$2,472	85.79 tons	\$6,630
Total Lifetime Benefits				\$26,503,598

Overall Project Benefits	Auto
Average Decrease in Travel Time	22%
Average Speed Increase	39%
Average Fuel Savings	18%
Average Reduction in Signal Delay	45%
Average Reduction in Number of Stops	38%
Overall Benefit-Cost Ratio	103:1



PROJECT BENEFITS SUMMARY



Average Reduction in Auto Signal Delay: 45%

Average Reduction in Number of Stops: 38%

Auto Fuel Consumption

Savings: 18% or 2,717,779 gallons



Total Emissions Reduced (ROG, NOx, PM2.5, CO): 101.43 tons

Auto Travel Time Savings: 22% or 808,657 hours



Overall Project Benefit-cost Ratio = 103:1



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